UNITED NATIONS

Framework Convention on Climate Change

Distr.
GENERAL

FCCC/SBSTA/1999/11
4 October 1999

Original: ENGLISH

SUBSIDIARY BODY FOR SCIENTIFIC AND TECHNOLOGICAL ADVICE
Eleventh session
Bonn, 25 October - 5 November 1999
Item 10 (a), (c) and (d) of the provisional agenda

DEVELOPMENT AND TRANSFER OF TECHNOLOGIES

STATUS OF THE CONSULTATIVE PROCESS (DECISION 4/CP.4)

COASTAL ADAPTATION TECHNOLOGIES

OTHER MATTERS

Progress report

Note by the secretariat

CONTENTS

		Paragraphs	Page
I.	INTRODUCTION	1 - 5	3
	A. Mandate	1 - 2	3
	B. Scope of the note	3 - 4	3
	C. Possible action by the SBSTA	5	4
II.	CONSULTATIVE PROCESS REFERRED TO IN DECISION 4/CP.4	6 - 12	4
	A. Specific mandate	6 - 7	4
	B. Discussion	8 - 12	5

GE.99-66272

		Paragraphs	Page
III.	ADAPTATION TECHNOLOGIES	13 - 15	6
	A. Specific mandate	13 - 14	6
	B. Discussion	15	6
IV.	COOPERATION WITH OECD/DAC	16 - 19	6
	A. Specific mandate	16	6
	B. Discussion	17 - 19	6

Annexes

I.	African Regional Workshop on Transfer of Technology Consultative Process, Arusha, Tanzania 16-18 August 1999	8
II.	CTI/ Industry Joint Seminar on Technology Diffusion in Eastern Europe, Bratislava, Slovakia, 14-17 July 1999	20

I. INTRODUCTION

A. Mandate

1. The Conference of the Parties (COP), at its first, second, third and fourth sessions requested the secretariat to undertake a number of tasks regarding the development and transfer of technology. These tasks are contained in decisions 13.CP.1,[1] 7/CP.2, 9/CP.3, and 4/CP.4 respectively.[2] The Subsidiary Body for Scientific and Technological Advice (SBSTA) has also requested the secretariat to undertake several tasks on the subject. The most recent conclusions may be found in the reports of the ninth and tenth sessions of the SBSTA (FCCC/SBSTA/1998/9 and FCCC/SBSTA/1999/6, respectively).

2. By its decision 4/CP.4, the COP requested the secretariat to continue its work on the synthesis and dissemination of information on environmentally-sound technologies and know-how conducive to mitigating, and adapting to, climate change. By the same decision, the COP also requested the Chairman of the SBSTA to establish a consultative process and to make recommendations on how to achieve agreement on a framework for meaningful and effective actions to enhance implementation of Article 4.5 of the Convention (decision 4/CP.4). Furthermore, the SBSTA, at its tenth session, requested the secretariat to complete its ongoing activities for 1999 as defined in the progress report prepared by the secretariat in document FCCC/SBSTA/1999/2 (FCCC/SBSTA/1999/6).

B. Scope of the note

3. This note provides information on the ongoing activities of the secretariat in 1999 related to the technology and transfer of technology and particularly on the progress of the consultative process on the transfer of technology.

4. Additional information relevant to the issues discussed in this note can be found in a technical paper on coastal adaptation technologies (FCCC/TP/1999/1) and submissions from Parties on options to accelerate and sustain the development and transfer of coastal adaptation technologies (FCCC/SBSTA/1999/MISC.11). Parties may also wish to consider the previous progress reports on the development and transfer of technologies (FCCC/SBSTA/1999/2, FCCC/SBSTA/1998/5 and FCCC/CP/1998/6).

---

[1] At its first session, by its decision 13/CP.1, the COP decided, *inter alia*, "to review, at the second session of the Conference of the Parties, and at each session of the Conference of the Parties thereafter, the implementation of Article 4.5 and 4.1(c) of the Convention as a separate agenda item" (FCCC/CP/1995/7/Add.1).

[2] For the full texts of decisions adopted by the Conference of the Parties at its first, second, third and fourth sessions, see documents FCCC/CP/1995/7/Add.1, FCCC/CP/1996/15/Add.1, FCCC/CP/1997/7/Add.1 and FCCC/CP/1998/16/Add.1, respectively.

C. Possible action by the SBSTA

5. The SBSTA may wish to consider the information in this progress report, and where necessary:

(a) Provide further guidance to the Chairman of the SBSTA concerning the consultative process referred to in decision 4/CP.4, and as appropriate, recommend a decision, for adoption by the Conference of the Parties at its fifth session;

(b) Provide guidance to the secretariat with regard to its work on adaptation technologies, particularly coastal zone technologies (see FCCC/TP/1999/1 and the submissions from Parties contained in FCCC/SBSTA/1999/MISC.11); and

(c) Urge those Annex II Parties that have not provided support for the consultative process to do so if possible.

II. CONSULTATIVE PROCESS REFERRED TO IN DECISION 4/CP.4

A. Specific mandate

6. By its decision 4/CP.4, the Conference of the Parties requested the Chairman of the SBSTA to establish a consultative process to consider the list of issues and questions contained in the annex to that decision, as well as any additional issues and questions subsequently identified by Parties, and to make recommendations on how they should be addressed in order to achieve agreement on a framework for meaningful and effective actions to enhance implementation of Article 4.5 of the Convention. It also requested the Chairman of the SBSTA to report on the outcome of the consultative process to the SBSTA at its eleventh session, with a view to recommending a decision for adoption by the Conference of the Parties at its fifth session.

7. At its tenth session, the SBSTA noted the progress made by the Chairman, with the assistance of the secretariat, in conducting the consultative process on the transfer of technology. It endorsed the proposal by the Chairman that the secretariat organize three regional workshops, one in Africa, one in Asia and the Pacific Islands, and one in Latin America and the Caribbean. It also recognized that, given the time and resources available, it would not be possible to complete all regional workshops before the fifth session of the COP. It invited the Chairman, with the assistance of the secretariat, to complete the regional workshops by early 2000, and to report to the SBSTA at its twelfth session, with a view to taking a decision by COP 6 (FCCC/SBSTA/1999/6, para. 69 (c) and (d)).

B. Discussion

8. The Chairman of the SBSTA held initial consultations on issues relating to the transfer of technology in the African context at a regional workshop on the transfer of technology consultative process, held from 16 to18 August 1999 in Arusha, Tanzania. The workshop was organized by the secretariat, with the assistance of the Government of Tanzania and the Centre for Energy, Environment, Science and Technology.

9. The agenda of the workshop was designed to address the issues and questions contained in the annex to decision 4/CP.4. The workshop was attended by 74 participants, 44 from non-Annex I Parties, representing 20 African and 2 Asian Parties. Representatives from 11 Annex I Parties also participated in the workshop. Six inter-governmental organizations were represented (United Nations Environment Programme, United Nations Development Programme, United Nations Industrial Development Organization, Global Environment Facility, Intergovernmental Panel on Climate Change, and Climate Technology Initiative), and two non-governmental organizations (International Chamber of Commerce and Climate Action Network). The report of the workshop is included in annex I to this document.

10. The workshop brought together a group of representatives of African governments, as well as recognized regional experts with a diverse range of experiences in the design and implementation of technology-based projects and programmes supported by bilateral and multilateral initiatives and the private sector.

11. The workshop was made possible through the receipt of financial assistance and/or in-kind support from the Governments of the United States of America and Germany. An additional financial contribution has been received from the Government of Australia to partly facilitate the organization of the workshop in Asia and the Pacific Islands. France and Austria have pledged to provide in-kind support and a financial contribution, respectively, to facilitate part of the organization of future workshops. Several other countries are also considering official offers of support for these two future workshops. Contributions received from Parties thus far have allowed the secretariat to organize one workshop in Africa and will partially fund the organization of one additional workshop. Thus it is important that other Annex II Parties, in a position to do so, provide further financial and/or in-kind support to facilitate the organization of the remaining two workshops.

12. The Climate Technology Initiative, in cooperation with the secretariat, organized a Regional Seminar on Technology Diffusion in Eastern Europe, on 15-17 July 1999, in Bratislava, Slovakia. A report by the secretariat on this seminar is contained in annex II to this document.

III. ADAPTATION TECHNOLOGIES

A. Specific mandate

13. At its second and third session, by its decisions 7/CP.2 and 9/CP.3 respectively, the Conference of the Parties requested the secretariat to prepare reports on adaptation technologies and to continue its work on the synthesis and dissemination of information on environmentally-sound technologies and know-how conducive to mitigating, and adapting to, climate change. The Subsidiary Body for Scientific and Technological Advice (SBSTA), at its eighth session, encouraged the secretariat to continue its work on adaptation technologies (FCCC/SBSTA/1998/6, para. 58 (h)).

14. The secretariat prepared a technical paper on coastal adaptation technologies for consideration by the SBSTA at its tenth session (FCCC/TP/1999/1). At that session, the SBSTA invited Parties to submit, by 16 August 1999, their views regarding options to accelerate and sustain the development and transfer of coastal adaptation technologies for compilation into a miscellaneous document and agreed to consider this issue at its eleventh session (FCCC/SBSTA/1999/6, para. 70 (a)).

B. Discussion

15. Submissions from Parties regarding their views on options to accelerate and sustain the development and transfer of coastal adaptation technologies were received from three Parties and are contained in document FCCC/SBSTA/1999/MISC.11. The secretariat has not identified any additional information on this subject, other than the information contained in document FCCC/TP/1999/1.

IV. COOPERATION WITH OECD/DAC

A. Specific mandate

16. The SBSTA, at its tenth session, requested the secretariat to continue to cooperate with the Development Assistance Committee (DAC) of the Organisation for Economic Co-operation and Development (OECD), in order to improve the availability of climate-relevant data from the reporting system of that committee (FCCC/SBSTA/1999/6, para. 70 (b)).

B. Discussion

17. As described in document FCCC/SBSTA/1999/2, the Development Assistance Committee secretariat, in cooperation with the secretariats of the Rio conventions, is undertaking a pilot study for the year 1998, to determine the feasibility of providing more comprehensive data on the financial assistance provided by developed countries in support of the objectives of the Rio conventions. Countries have been requested to classify individual aid activities against three new markers referring to the above conventions, in order to assess and single out specific

projects relevant to the objectives of the conventions which otherwise would be reported under a general marker named "aid to the environment".

18. The Development Assistance Committee secretariat is in the process of receiving and analysing preliminary data from a number of reporting Parties, and expects to complete the collection of data and the report of the pilot study by March 2000. The UNFCCC secretariat is planning to present the final results of the pilot study to Parties at the twelfth session of the SBSTA.

19. The secretariat conducted a preliminary review of some of the data received by the Development Assistance Committee secretariat. The review suggests that there is a potential to obtain a wide range of information relevant to the Convention process. If such a system were to be implemented, it may be possible to have, for example, the total annual bilateral official development assistance commitments for each OECD country broken down and specific information on relevant sectors, i.e. energy, transport, forestry and others. It may also be possible to determine whether the principal objective of this aid is specifically related to climate change, or more generally to other environmental goals.

Annex I

AFRICAN REGIONAL WORKSHOP ON TRANSFER OF TECHNOLOGY CONSULTATIVE PROCESS

Arusha, Tanzania
16-18 August 1999

Introduction

1. The objectives of the workshop, held in Arusha, Tanzania, from 16 to 18 August 1999, were to advance the understanding of special situations and needs of the African countries, and to generate information and ideas on practical steps to enhance the transfer of technology in Africa.

2. The workshop participants recognized that Africa is an immense and diverse region comprising countries and regions with very different sets of environmental, geographic, economic and social characteristics. At the same time, various combinations of African countries share many similar national and regional circumstances, both in economic and social terms, but also in terms of natural resources endowments and sensitivity to climate extremes and climate change.

3. For many African countries, the issue of climate change has tended to be separate from the mainstream economic development agenda. Consequently, the synergy that exists between development issues and addressing climate change has not been fully exploited. For many African countries, priorities such as food and water security, energy security, improving the quality of life and habitat, and sustainable economic growth and employment often take precedence over concerns about climate change.

4. Participants recognized that practical steps to address the concerns of climate change under the Convention would also need to simultaneously address the priority concerns noted above. Furthermore, actions to address concerns about climate change would need to involve the cooperation and participation of multiple stakeholders, including intergovernmental and multilateral organizations, national and local governments as well as the private sector and non-governmental organizations (NGOs).

Organization of the report

5. This report presents a summary of the workshop presentations and discussions. Most of the issues and questions contained in the annex to decision 4/CP.4 can be addressed by considering six sets of key questions. This report is organized according to the following six themes and related sets of questions:

(a) Technology needs
What are the technology needs of African countries?[1]

(b) Barriers to the development and transfer of technologies
How should Parties promote the removal of barriers to technology transfer? Which barriers are a priority and what practical steps should be taken?

(c) Capacity-building for technology transfer
What areas should be the focus of capacity-building, and how should it be undertaken, e.g. what kinds of activities, programmes and institutional arrangements?

(d) Technology information
What information on technologies is needed and how can this information best be identified, developed, stored, accessed, and provided to Parties?

(e) Transfer of technology mechanisms
Are existing bilateral and multilateral mechanisms for technology transfer sufficient? Are new mechanisms needed? If so, what are appropriate mechanisms for the transfer of technologies among Parties, in pursuance of Article 4.5 of the Convention?

(f) The role of the private sector
What role is the private sector playing in technology transfer? What additional role can the private sector play? What barriers prevent their greater participation?

TECHNOLOGY NEEDS

6. Many African countries were unable to report on specific technology needs due to a lack of the human and organizational capacities needed to conduct adequate technology needs assessments. However, some general themes emerged. Africa's technology needs span the range of greenhouse gas limitation and adaptation technologies. In the case of greenhouse gas

---

[1] This question is not explicitly contained in the list of issues and questions in decision 4/CP.4. However, many of the presentations and much of the discussion at the workshop raised this question as a fundamental starting point for the consultative process.

limitation technologies, rural electrification as well as technologies to replace household consumption of biomass (wood fuel) are particular priorities for a number of countries. Energy technologies used in the industrial sector are also a priority. Key adaptation technologies include technologies to improve, in a sustainable manner, water supply, agriculture and food production. It was noted that adaptation technologies are not generally emphasized as much as mitigation technologies because of a lack of information on vulnerability and adaptation and not because they are unimportant in African countries.

In addition to "hard" technologies such as infrastructure and equipment, participants discussed the need for "soft" technologies such as know-how, practices and related capacity-building. These needs are discussed in the remainder of the report in the context of the various barriers to technologies and practical steps to build capacity to address such barriers.

BARRIERS TO THE TRANSFER OF TECHNOLOGIES

Participants at the workshop identified several important general barriers to the transfer of environmentally-sound technologies to African countries. The identified barriers, however, do not represent a comprehensive list for African countries. The identification and elaboration of barriers to the development and dissemination of environmentally-sound technologies was recognized as an important step in conducting a technology needs assessment and identifying appropriate actions to enhance the dissemination of environmentally-sound technologies in the Africa region.

The barriers described below are organized into five categories: economic and financial; organizational; institutional; human resource related; technological and technology information.

Economic and financial

10. Many African countries are among the poorest in the world. Several participants noted that the overall poor economic situation in many African countries prevents the development and transfer of environmentally-sound technologies. The poor economic base and low incomes lead to low levels of savings and investment.

11. The existence of market failures in many African countries also hinders the development and deployment of environmentally-sound technologies. Market barriers relate to the lack of incentives and in some cases the existence of disincentives to stimulate the development of markets for environmentally-sound technologies.

12. The structure of markets in African countries is often characterized by oligopolies. Such market structures often inhibit establishing a fair pricing system. In many cases, the financial systems fail to give correct price signals and therefore energy efficiency measures may not be introduced.

Several participants noted that the size of the markets in African countries is relatively small. Additional transaction and development costs are incurred by attempting to stimulate the deployment of technologies in small markets. Thus, small markets pose a problem to business as they usually have time to relate on investments.

The majority of energy projects implemented in the region are supported by loans. Risk aversion on the part of local loan providers was also identified as a barrier. Environmentally sound technologies are frequently overlooked by loan providers as they are often viewed as risky investments.

Organizational and institutional

The participants noted that the business environments often discourages participation by the private sector, investors and other non-governmental stakeholders in many African countries. The investment environment includes: non-transparent legal systems, relatively weak enforcement mechanisms for laws relating to investments and companies, long arbitration processes, unclear property rights, high legal fees, institutional inertia, the frequently monopolistic or oligopolistic structures of markets, inadequate macro-economic policies, lack of adequate communications capabilities, and a scarcity of indigenous firms for subcontracting.

The participants also discussed the widespread lack of capacity barriers within African countries that appear to include: non-existent acquisition of skills and knowledge from external sources, and the crowding out of indigenous skills. The absence of these important cultural policies presents a barrier to acquisition and deployment of environmentally sound technologies in the region.

In the specific case of transnational technologies, a lack of coordination among the many different projects being implemented in the region was noted. Insufficient communication between the implementing institutions of these projects at the local, national and regional levels is a constraint to their well-timed market deployment of such technologies.

The participants noted that African countries possess inadequate institutional capacity to properly identify technologies under the Convention. The lack of this capacity makes it difficult for countries to communicate their needs to other Parties and participate in programmes for technology transfer and development.

The participants also discussed the general lack of communication capacity in many African countries to influence global thinking on local and foreign technology development and implementation initiatives. This factor also translates into a lack of local ability to participate in the transfer of technology within the framework of the relevant programmes.

20. The meeting also identified a lack of institutional capacity to conduct technology research and development, bench-marking, piloting and commercial transfer of appropriate environmentally-sound technologies. This contributes to reliance upon foreign technology which may not be appropriate for the specific needs of African countries.

21. The meeting also noted that there is insufficient coordination on the part of donor countries between their foreign aid programmes providing technical cooperation and their research and development programmes for new and emerging technologies.

22. Participants noted that institutional inertia, or the resistance to change, is another obstacle and is worse in a relatively uncompetitive environment, as is the case in many African countries. This generates inefficiencies and deters the introduction of new methods and techniques to improve productivity.

Human resource related

23. Participants frequently noted a general lack of appropriate training in the region. For example, training in project development, management and operations related to national utilities is often disjointed and mainly offered only by international organizations.

24. The participants also noted a general lack of understanding of imported proprietary technology. The participants further noted that the relatively low level of technological capability in African countries is a significant barrier to technology transfer and development. This is principally due to the lack of an appropriately-skilled technical workforce.

Technological

25. The workshop participants noted the lack of institutional infrastructure to support the development and implementation of appropriate technology standards and regulations based on local conditions. This leads to degraded technology performance and inappropriate technology sourcing. The lack of institutional infrastructure is a significant barrier to appropriate technology development and deployment in the region.

26. The participants also discussed the general lack of technical ability in the region to use and manage imported proprietary hardware. Further, this deficit of technological know-how diminishes the capability to alter, improve or retrofit foreign technologies for local conditions or to bypass a problem without recourse to the supplier.

27. The participants also noted that normal engineering procedures for testing, commissioning, and supporting equipment purchases are often lacking. This is a common problem, for example, with renewable energy technologies and contributes to their poor performance in many applications. It also contributes to poor maintenance programmes and poorly operating equipment. As a result, many newly introduced technologies fail to meet operational expectations.

Technology information

28. The participants also recognized that there is a poor technical information base in many African countries which seriously affects the capacity for effective identification and selection of technologies. Access to information is essential to the technology transfer process.

29. Many technically competent personnel in African countries lack access to international information, and this results in sub-optimal choices. Often there is also a lack of local data required for the design of good investment projects. These data, such as performance data and supporting banking and insurance information, are critical in making good investment decisions.

30. It was suggested that African countries require extensive and open access to information on both indigenous and emerging technologies. It was mentioned that most relevant information is only available to and accessible by government ministries, and in particular the national focal point.

31. Some participants noted that there is a lack of available information on publicly-owned technologies. In many instances, and particularly in the case of simple technologies such as those traditionally used for many processes in African countries, there are possibly many publicly-owned technologies which could improve or replace existing technologies.

CAPACITY-BUILDING FOR TECHNOLOGY TRANSFER

32. Throughout the workshop many suggestions on practical steps to build capacity for technology transfer were presented or discussed. The various ideas are summarized below under six categories:

- Assisting in the identification of technology needs;
- Addressing economic and financial barriers;
- Improving organizations and institutions;
- Strengthening human resources;
- Overcoming technological barriers; and
- Strengthening access to appropriate technology information.

Assisting in the identification of technology needs

33. Acquiring the necessary resources and skills to identify technology needs is a priority for African countries. These assessments can be conducted at the national or regional level and must take into account the current profile of existing technologies as well as those being demonstrated and tested. An important component of any technology needs assessment should be the identification of local capacities and competencies to manufacture and maintain various technologies.

34. In the case of many African countries, technology needs assessments will require the provision of financial or in-kind assistance to develop and strengthen existing institutions to enable them to undertake country-driven approach.

Addressing economic and financial barriers

35. Several practical steps were suggested which could help many African economies. A key theme was the introduction of new and innovative financing mechanisms, as well as appropriate training and technical support for local, small and medium-sized enterprises and entrepreneurs to engage in the production or distribution of environmentally-sound technologies, know-how and practices.

36. African participants suggested that such financing and training should target:

- Technologies or practices which improve productivity and generate incomes, particularly among the rural poor,
- Enterprises which specifically contribute to the transfer of technologies across national borders; and
- Projects which allow Africans to take equity partnerships in cleaner production businesses.

37. Taking steps to introduce economic pricing, including the removal of cross-subsidies for electricity prices, requires several different kinds of capacity-building. The most fundamental is appropriate training to help countries formulate, integrate and implement national energy and environmental policies. Other training and awareness-raising within governments could assist in the removal of discriminatory import taxes on environmentally-sound technologies and the introduction of tax incentives.

38. Specific awareness-raising and training for loan providers and financiers could be introduced possibly with the development of new international finance windows for assistance to enhance the financial resource base explicitly for environmentally-sound technologies.

Improving organizations and institutions

39. Several of the organizational and institutional barriers listed above can begin to be addressed by identifying and implementing processes to integrate the goals of technology transfer under the Convention within the existing framework of development, energy, environment and natural resource development policies. Such an integrated approach may help to ensure that technologies wanted or applied are consistent with national or regional sustainable development goals. Another possible step which was suggested was the establishment of

national implementing frameworks for technology transfer (e.g. by the creation of "technology transfer desks"). A related practical step could be the identification of best practice models for building capacity related to technology transfer.

40. The participants also suggested the enhancement of information sharing and networking among African focal points and between the focal points and key national institutions, as well as the strengthening of the capacities of national focal points to develop and implement national programmes to promote the diffusion of environmentally-sound technologies and know-how.

41. Various practical steps were put forward which may address barriers which relate to the lack of a conducive enabling environment for the development and transfer of technologies, know-how and practices. These include:

(a) The encouragement of greater private sector participation through incentives such as tax reforms and economic pricing;

(b) Better protection of intellectual property rights;

(c) Removal of regulatory barriers such as those limiting grid access for renewable energy technologies;

(d) Support to facilitate non-governmental organizations to mobilize actions at the societal level, help secure financing, assist in the removal of certain barriers, help raise public and political awareness to overcome barriers such as those which are sensitive because of vested interests, and play a role in participatory approaches to help the rural poor; and

(e) Support to assist the development of partnerships between the private sector and non-governmental organizations, such as joint ventures directly with owners and producers of technologies to increase capacity-building and technology transfer.

Strengthening human resources

42. Training was mentioned many times. Enhancing and expanding the pool of human resources and skills necessary to identify and implement national and regional technology transfer goals involves the provision of appropriate training at several levels, including the centre of government; government departments and national utilities; the private sector; the banking and finance sector; non-governmental organizations; and the local community.

43. Given the limited resources available for training and the wide range of training needs, several participants supported the idea of focusing on training at national and regional centres rather than more expensive training programmes which are available internationally.

44. Greater utilization of African experts from the UNFCCC roster of experts was suggested as a way of drawing upon and building human resources at the national and regional levels in Africa.

45. One additional suggestion which could strengthen human resources in the long term is the introduction and/or improvement of energy studies in scientific and educational institutions.

Overcoming technological barriers

46. A key message from the workshop was that capacity-building in this area should reinforce the existing technological capabilities of African countries (for example, the development and enhancement of programmes to coordinate biomass activities, networks and projects at the regional level). This would help to ensure that technologies are developed with an "eye for the African market". One particularly effective way to build on existing strengths and capacities in different mitigation and adaptation fields could be through the strengthening of ties between different African regional groups to promote regionally-driven research and development and market stimulation of environmentally-sound technologies, know-how and practices. Such cooperation could also help to simulate more conducive enabling environments at the regional level for such technologies.

47. A related practical step could be activities and networking to improve coordination among the development assistance and technical cooperation/research and development communities and between donor countries.

48. The development and introduction of appropriate technology and product standards based on local conditions was identified as a way of overcoming several technological barriers. This could encourage the selection and implementation of environmentally-sound technologies such as off-grid renewable energy systems.

Strengthening access to appropriate technology information

49. Participants identified a number of priorities in relation to improving access to and dissemination of appropriate information on environmentally-sound technologies, know-how and practices in the African region. These included:

(a) Improving access to information available at international centres;

(b) Expanding such access to cover various kinds of information currently not available, for example, information on the design requirements for good investment projects, performance data, banking and insurance information, and information on emerging technologies;

(c) Support to assist cooperation among African countries in sharing information on research and development, and market simulation, for environmentally-sound technologies and know-how;

(d) Greater networking among regional information centres to assist the transfer of solutions and approaches which have been developed within the African region; and

(e) The expansion or establishment of national and/or regional cleaner production centres and centres for innovation and enterprise development or their equivalents.

50. A specific suggestion was the establishment of a "rights bank" or pooling system for the dissemination of information on publicly-owned environmentally-sound technologies, know-how and practices.

TRANSFER OF TECHNOLOGY MECHANISMS

51. A number of participants expressed their belief that Africa has not benefited adequately from past efforts to improve access to the mechanisms to transfer environmentally-sound technologies and know-how under the Convention. Many African industries and services are small and medium-sized enterprises which to date have found it difficult, if not impossible, to be informed of and to engage in the intergovernmental processes under the Convention.

52. A message brought forward at the workshop confirmed that technology transfer represents an opportunity for international cooperation under the Convention. It was recognized that the principles of such cooperation were neither charity nor goodwill, but could be based on the development of strategic partnerships among governments, the private sector and other stakeholders among the full range of developed and developing countries. Intra-continental or so-called "South-South" partnerships among African countries were identified as a particularly important and potentially effective mechanism for technology transfer.

53. The Global Environment Facility (GEF) has been testing and demonstrating a variety of financing and institutional models for promoting technology diffusion. A number of climate-relevant projects have been implemented in the African region in the GEF project portfolio for the period 1991-1999. UNDP and UNEP also presented their relevant experiences in implementing projects in Africa; and UNIDO presented its activities related to the development of technology information centres.

54. A number of possible actions for multilateral institutions and bilateral donors were suggested. These actions include:

- Greater facilitation of stakeholder dialogue;
- Greater support for participatory and integrative approaches that aim at building consensus on priorities and strategies;
- Support for pilot and experimental activities;
- Efforts to ensure that market reforms take environmental concerns into account;
- Regular reports on efforts to strengthen coordination and exploit synergies among their activities;
- Pursuing greater coordination among themselves; and
- Promotion and support for research and development that meets the specific needs of African countries

THE ROLE OF THE PRIVATE SECTOR

55. The role of the private sector in the context of Africa was discussed primarily within the framework of governments responsibility to encourage the right enabling environment. Transfers of public funding from developed countries to developing countries are stagnating or declining, a trend that is not likely to be reversed in the immediate future. It is therefore necessary to make the best possible use of existing resources and at the same time mobilize private sector investment. However, there was limited participation from the private sector at the workshop. The private sector from both developed and developing countries should be given greater encouragement to participate in future workshops and activities.

POSSIBLE NEXT STEPS

56. Over the course of the workshop and culminating with the discussion in the final session, many participants clearly expressed their view that further progress towards identifying meaningful and effective actions within the framework of the consultative process would best be achieved by conducting the following three necessary and important steps:

(a) Implementation of national and/or regional assessments to identify and prioritize African countries' needs for environmentally-sound technologies, know-how and practices;

(b) Further identification and description of specific barriers relating to priority technologies, know-how and practices identified by technology needs assessments and practical steps to address those barriers; and

(c) The identification and implementation of meaningful and effective actions that could be undertaken by relevant stakeholders to enhance the transfer of technology under the Convention.

57. Participants were cautious about determining and agreeing upon a set of meaningful and effective actions for Africa in the context of the consultative process at this stage.

58. In view of this, African participants agreed that there is a need to continue the dialogue on the transfer of technology. African participants proposed the establishment of an African expert group on the transfer of technology to continue the dialogue initiated by this workshop and which could help to synthesize and expand upon the ideas presented at this workshop and develop proposals for further activities and initiatives for Africa.

59. In his concluding remarks, the Chairman of the SBSTA welcomed the workshop as a good start to the consultative process and noted that the experience gained from this first workshop would be very useful for the preparation of the two future workshops in Asia and the Pacific and in Latin America and the Caribbean.

Annex II

CTI/ INDUSTRY JOINT SEMINAR ON TECHNOLOGY DIFFUSION IN EASTERN EUROPE

Bratislava, Slovakia
14-17 July 1999

Introduction

1. Technology diffusion in Eastern Europe in the context of the consultative process referred to in decision 4/CP.4 was the theme of a seminar organized by the Climate Technology Initiative in cooperation with the secretariat, held in Bratislava, Slovakia, 14-17 July 1999.[1]

2. The seminar was an opportunity for experts and government representatives from Eastern European countries to present their views on issues related to the development and transfer of environmentally-sound technologies and know-how in the context of the issues and questions listed in the annex to decision 4/CP.4.

3. A selection of key messages relevant to the consultative process emerging from the seminar is provided and summarized by the secretariat below.

Eastern Europe has significant and in many cases advanced capacities to assess climate technology needs, and to formulate and implement climate strategies

4. Eastern European countries have significant institutional capacities to assess their technology needs and implement climate technology strategies. The region has a highly educated population with highly qualified engineers. Moreover, several advanced energy technologies have been developed in Eastern European countries.

5. The technology needs of Eastern European countries in relation to their energy efficiency and climate goals are relatively well understood. Technology needs were identified in a number of areas, including energy efficiency, combined heat and power or co-generation technologies, and renewables, including biomass technologies. District heating systems were a frequently cited example. District heating infrastructure in Eastern Europe is vast: approximately 200 million customers are connected to district heating systems. Significant investment for modernization is needed. Pipes need re-insulating, and valves and controls replacing. Sufficient monitoring equipment is also required.

---

[1] Climate Technology Initiative/Industry Joint Seminar on Technology Diffusion in Eastern Europe, Bratislava, Slovakia, 14-17 July 1999, co-sponsored by the European Commission DG XVII, NEDO, Japan, the US Department of Energy and USAID, in cooperation with the UNFCCC secretariat.

Eastern European governments are already actively pursuing improvements in energy efficiency

6. In Eastern Europe, the issue of technology transfer must be seen in the context of the need for finance and innovative financing arrangements for investment in energy projects. Energy efficiency is a well-internalized goal of government. Most, if not all, Eastern European countries have a specific ministry responsible for overseeing energy efficiency policies.

7. Eastern Europe has gained significant experience regarding practical examples of cooperative energy efficiency projects and programmes, from a large number of AIJ projects (for example, in the Czech Republic, Latvia, Slovakia and the Russian Federation). In many cases, project evaluations emphasized the need for cooperative approaches resulting in the sustainable transfer of skills, and knowledge and capacities to introduce and maintain advanced energy technologies rather than the implementation of 'turn-key' projects.

Barriers to the transfer and deployment of climate technologies play a critical role, particularly those related to acceleration of innovations in financing and legal reform

8. While many of the general set of barriers (institutional, political, technological, economic, information, financial and cultural) normally encountered in relation to the development and transfer of climate-related technologies are experienced in the region, particular emphasis was given to barriers and opportunities related to financing and legal/policy frameworks.

9. Financing energy efficiency projects was identified as a particularly important element of the diffusion of climate relevant technologies in Eastern Europe. "Soft" technologies such as information and approaches concerning financing mechanisms (rather than hard technologies *per se*) was identified as especially critical to enable the transfer of technologies.

10. In addition to financing, the lack of adequate legal and policy frameworks also emerged as critical barriers to the enhancement of technical cooperation and investment. The enhancement of private sector involvement is particularly sensitive to the nature and pace of change in the legislative and policy environment. Many Eastern European governments are already in the process of reforming energy laws and taxes in order to achieve their policy goals.

11. The role of government procurement policies as a means of creating market pull for energy efficient technologies was also highlighted.

- - - - -